What is claimed is:

1. An adaptive antenna array system comprising:

an antenna array comprising a plurality of antenna elements, the antenna array synthesizing received signals received by each of the antenna elements by weighting them according to a weighting coefficient and outputting a synthesized signal;

a weighting coefficient calculation unit for calculating the weighting coefficient of received signals by adaptive control;

an evaluation unit for evaluating the convergence status of adaptive control by the weighting coefficient calculation unit; and

a control unit for controlling the operation of adaptive control by the weighting coefficient calculation unit corresponding to the results of evaluation of convergence status by the evaluation unit.

2. An adaptive antenna array system according to claim 1, wherein the weighting coefficient calculation unit calculates the weighting coefficient by adaptive control using an adaptive algorithm based on the minimum mean square error method so as to minimize the moving average square error between a reference signal and an output signal, and

the evaluation unit judges that adaptive control by the weighting coefficient calculation unit has converged when the moving average square error is continuously below a predetermined value for a predetermined number of times.

3. An adaptive antenna array system according to claim 1, wherein the weighting coefficient calculation unit calculates the weighting coefficient by adaptive control using

an adaptive algorithm based on the minimum mean square error method so as to minimize the moving average square error between a reference signal and an output signal, and

the evaluation unit judges that adaptive control by the weighting coefficient calculation unit has converged when the rate of change of the moving average square error has fallen below a predetermined value.

4. An adaptive antenna array system according to claim 1, wherein the control unit stops the operation of adaptive control by the weighting coefficient calculation unit, when the control unit judges by the evaluation unit that adaptive control by the weighting coefficient calculation unit has converged.

5. An adaptive antenna array system according to claim 1, wherein the control unit intermittently activates adaptive control by the weighting coefficient calculation unit, when the control unit judges by the evaluation unit that adaptive control by the weighting coefficient calculation unit has converged.

6. An adaptive antenna array system according to claim 5, wherein the control unit intermittently activates adaptive control by the weighting coefficient calculation unit at a specific interval.

7. An adaptive antenna array system according to claim 5, wherein the control unit returns adaptive control by the weighting coefficient calculation unit to a constant state when conditions for judging convergence of adaptive control by the evaluation unit are no longer satisfied in the case adaptive control by the weighting coefficient calculation

unit is being activated intermittently.

8. An adaptive antenna array system according to claim 5, wherein the control unit adaptively controls an interval at which adaptive control by the weighting coefficient calculation unit is activated intermittently.

9. A weighting coefficient calculation and control method in an adaptive antenna array system which comprises an antenna array composed of a plurality of antenna elements, and synthesizes received signals received with the antenna elements by weighting the signals according to a weighting coefficient and outputs a synthesized signal,

the method comprising:

a weighting coefficient calculation step for calculating the weighting coefficient of the received signals by adaptive control;

an evaluation step for evaluating the convergence status of adaptive control by the weighting coefficient calculation step; and

a control step for controlling operation of adaptive control by the weighting coefficient calculation step corresponding to the results of the evaluation of convergence status by the evaluation step.